

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL A. UNDERBRINK, KELLY H. HALE,
GUANG-MING YIN, PATRICK D. RYAN,
JOSEPH H. COLLES, DARYUSH SHAMLOU,
and CHRISTIAN LEVESQUE

Appeal No. 2004-2195
Application No. 09/394,189

ON BRIEF

Before HAIRSTON, DIXON, and NAPPI, **Administrative Patent Judges**.
DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-6, 8-12, 22-28, 30, and 31, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

Appellants's invention relates to a directional antenna for a hand-held wireless communications device. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A system for wireless communications comprising:

a hand-held wireless communications device;

an antenna coupled to the hand-held wireless communications device, the antenna configured to radiate with greater field intensity over an area of less than 360 degrees of arc;

a transmitter amplifier coupled to the antenna, the transmitter amplifier having an output impedance that matches the impedance of the antenna, the impedance of the antenna, determined by performing a finite element analysis on a design of the antenna to determine an estimated output impedance, and adjusting the antenna if the estimated output impedance does not approximately match the transmitter amplifier output impedance; and

wherein the antenna is oriented such that the area of less than 360 degrees of arc is in the direction away from a head of a user of the hand-held wireless communications device.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Naitou	4,849,767	Jul. 18, 1989
Lane et al. (Lane)	5,400,040	Mar. 21, 1995
Tsuru et al. (Tsuru)	5,530,919	Jun. 25, 1996
Krenz et al. (Krenz)	5,542,106	Jul. 30, 1996
Flowerdew et al. (Flowerdew)	6,134,420	Oct. 17, 2000

Erturk et al. (Erturk), "Design/Analysis of an Active Integrated Antenna," 2 Antennas and Propagation Society International Symposium 1322-1325 (July 1996)

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Claim 27 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Erturk. Claims 1-4, 6, 8, 9, 11, 12, 22-26, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuru in view of Krenz, Lane and Erturk. Claims 5 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuru, Krenz, Lane and Erturk in view of Flowerdew. Claim 28 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Erturk. Claim 30 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Erturk in view of Naitou.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 19, mailed May 6, 2003) for the examiner's reasoning in support of the rejections, and to appellants' brief (Paper No. 18, filed Feb. 10, 2003) and reply brief (Paper No. 20, filed July 7, 2003) for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

35 U.S.C. § 102

"Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention." **RCA Corp. v. Applied Digital Data Sys., Inc.**, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." **Scripps Clinic & Research Found. v. Genentech Inc.**, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." **In re Hiniker Co.**, 150 F.3d 1362,1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations set forth in independent claim 27. Here, the language of independent claim 27 recites "performing a finite element analysis on the design of a patch antenna to determine an estimated output impedance." Appellants argue that Erturk does not disclose or inherently teach the step of performing a finite element analysis to determine impedance. (See brief at page 4.) The examiner maintains that Erturk teaches performing a finite element analysis at page 1 [sic, 1322], lines 25-29. (See answer at page 4.) We disagree with the examiner and find no such teaching of the use of finite element analysis. Furthermore, we find no discussion by the examiner as to why it would have been inherent that the disclosed/recited models necessarily use finite

element analysis. Therefore, we find that the examiner has not established a *prima facie* case of anticipation, and we cannot sustain the rejection of independent claim 27.

35 U.S.C. § 103

With respect to the obviousness rejection, the examiner relies upon the teachings of Tsuru, Krenz and Lane to evidence the invention as recited in independent claim 1, but continues to rely on the teachings of Erturk with respect to impedance matching determined by finite element analysis as discussed above in the anticipation rejection. (See answer at pages 5-6 and 14.) The examiner maintains that the FDTD (finite difference time domain) protocol is “read as a finite element analysis” and that this analysis is used to determine the expected impedance. Appellants argue that Erturk does not teach or inherently disclose the step of determining the transmitter impedance as well as the estimated impedance of the antenna. (See brief at page 5.) Appellants argue that Erturk teaches the adjustment of the microstrip transmission line rather than the antenna. (See brief at page 5.) The examiner maintains that the microstrip line is “a portion of the transmitter amplifier portion of the circuit as read by the examiner.” (See answer at page 14.) With this interpretation of the Erturk reference, we do not find that the impedance of the antenna element is adjusted as a result of a finite element analysis. Nor do we find that the examiner has provided a convincing line of reasoning why it would have been obvious to one of ordinary skill in the art at the time of the

invention to determine the impedance, as a result of a finite element analysis, of the antenna element which is then adjusted.

The examiner maintains that Erturk should not be limited to appellants' interpretation that the microstrip line is only notched. (See answer at pages 15-16.) We disagree with the examiner and do not find that Figure 1 of Erturk or the express teachings of Erturk expressly support the examiner's contention, and we do not find that the examiner has provided a reasoned analysis as to why finite element analysis is used to determine the impedance and the adjustment of the antenna element. Therefore, we find that the examiner has not established a *prima facie* case of obviousness of the invention as recited in independent claim 1 and its dependent claims. Independent claims 8 and 22 contain similar limitations not taught or fairly suggested by the examiner's combination. Therefore, we will not sustain the rejection of independent claims 8 and 22 and their dependent claims. Furthermore, we do not find that the teachings of Flowerdew remedy the above-noted deficiencies with respect to dependent claim 10. Also, we do not find that the teachings of Erturk alone or in combination with Naitou remedy the deficiencies noted above with respect to independent claim 27 and, therefore, we do not sustain the rejection of dependent claims 28 and 30.

CONCLUSION

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To summarize, the decision of the examiner to reject claim 27 under 35 U.S.C. § 102, and claims 1-6, 8-12, 22-28, 30 and 31 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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ROBERT E. NAPPI)	
Administrative Patent Judge)	

JLD:clm

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Mr. Christopher John Rourk
GODWIN GRUBER, LLP
1201 Elm Street, Renaissance Tower
DALLAS, TX 75270